

Estuaries

of southwest Florida

What is an estuary?

An estuary is where fresh water and salt water mix. This mixed water is called brackish water. Estuaries are dynamic coastal water bodies that vary in salinity and other aquatic conditions. Estuaries (pronounced *es-choo-air-ees*) have names such as bays, sounds and harbors.

Estuaries are transitions between land and water and between freshwater rivers and the salty sea. The result is diversity — a broad spectrum of habitats where unique communities of species live.



Open water bay
Includes red mangroves, oyster reefs, seagrasses

Mangrove fringe
Includes red mangroves, black mangroves, white mangroves, green buttonwoods, sabal palms

Marsh
Includes giant leather ferns, black needlerushes, cordgrasses, saltgrass

Gulf of Mexico — salt water

Water from the Gulf of Mexico mixes with water from rivers and streams

Rivers and streams — fresh water

What makes an estuary?

Diversity of mixing waters makes estuaries unique places. This mix can be as simple as a river flowing into the sea or as complex as many rivers feeding a broad bay protected by barrier islands. Estuaries vary by location, season, tide and weather. As a result, an estuary is a spectrum of

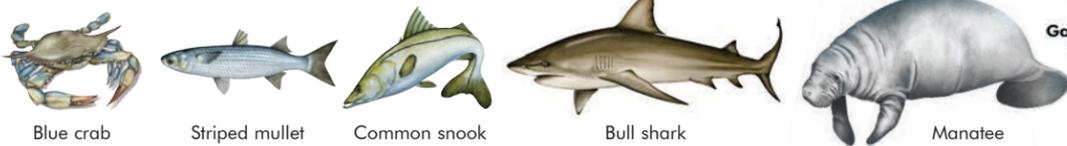
habitats varying in salinity, water depth, water clarity and bottom type. This range of living conditions attracts a diverse assemblage of organisms. Some are ecologically important, such as reef-forming oysters, seagrasses, mangroves and marsh grasses.

What lives in an estuary?

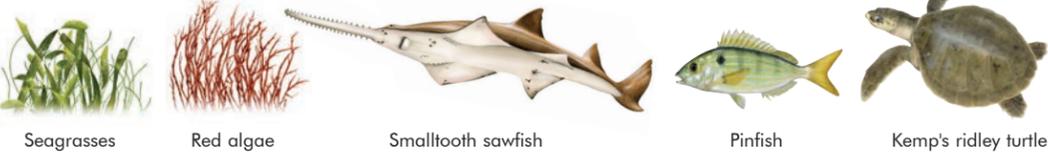
An estuary consists of many habitats, which support their own assemblages of plants and animals. Most of the 500 fish species living in the Gulf of Mexico spend some of their lives in

an estuary. Examples of southwest Florida estuarine species are below, organized by the salinity where they are often observed.

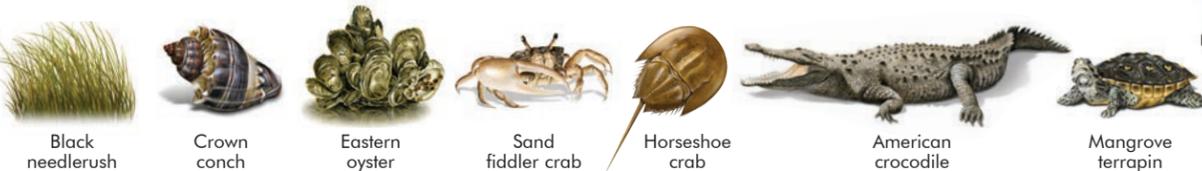
Wide-ranging salinity



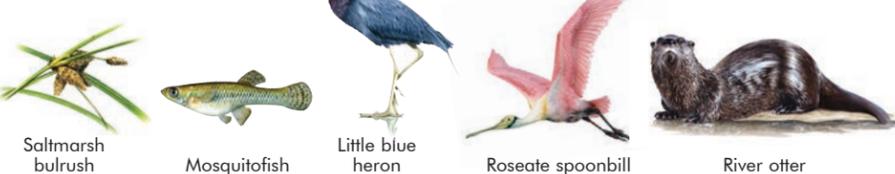
High salinity



Moderate salinity

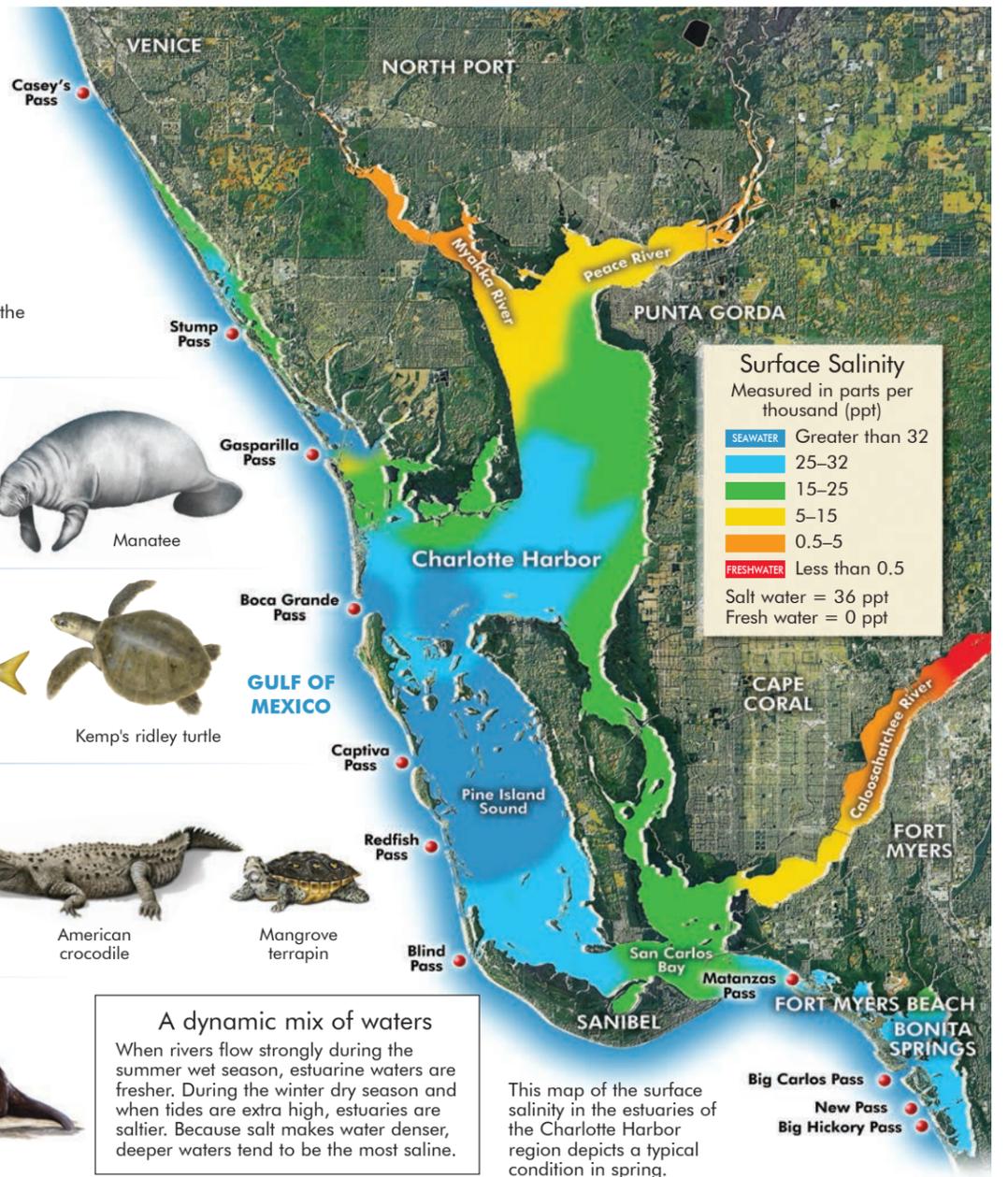


Low salinity



A dynamic mix of waters

When rivers flow strongly during the summer wet season, estuarine waters are fresher. During the winter dry season and when tides are extra high, estuaries are saltier. Because salt makes water denser, deeper waters tend to be the most saline.



This map of the surface salinity in the estuaries of the Charlotte Harbor region depicts a typical condition in spring.

What is the value of an estuary?

Estuaries foster exquisite natural beauty and are greatly valued for their contribution to our quality of life. Estuaries have a high economic value that can be measured in dollars generated by commercial enterprise, such as fisheries and sales of recreational equipment and real estate.



The Charlotte Harbor estuary from Venice to Bonita Springs provides approximately \$2.6 billion per year in net value to Florida households and contributes an estimated \$4.7 billion per year in local income (values adjusted for 2012).

What are the threats?

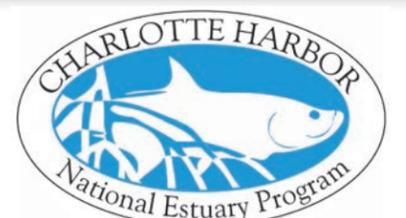
- Excessive nutrients from septic tanks and from fertilizers used on lawns, golf courses and agriculture result in algal blooms, turbidity, seagrass loss, reduced dissolved oxygen and fish kills.
- Disease-causing organisms from poor water quality pose a health threat to swimmers and seafood consumers.



- Development that alters marshes or tidal habitats reduces filtration of pollutants and decreases wildlife habitat. Waterfront seawalls create a shoreline that allows stormwater and lawn chemicals to enter directly into the estuary.
- Synthetic debris entangles wildlife and reduces aesthetic values.

How can you help?

- Reduce fertilizer use and select landscaping that does not require irrigation.
- Keep trash and yard waste out of storm drains and waterways. Dispose of hazardous materials at approved collection sites.
- Learn about your estuary at www.CHNEP.org. Volunteer to measure water quality, restore and remove trash.



A partnership working to protect the natural environment of Florida from Venice to Bonita Springs to Winter Haven.

www.CHNEP.org